Please click on bookmark icon in the top right corner for list of IAP 2017 Syllabi.
15. S04: EXPERIMENTAL INNOVATION LAB (X-Lab)
MIT SLOAN SCHOOL OF MANAGEMENT
IAP 2017 (Jan 24-27, 14:00-17:00 in E62-450)

Syllabus

Instructors:
Don Sull (dsull@mit.edu)
Neil Thompson (neil_t@mit.edu)

Teaching Assistants:

I. INTRODUCTION

Evidence-based decision making is hard. Managers want to learn how to achieve their goals by mobilizing their resources and capabilities, but doing this requires evaluating the outcomes of their projects and initiatives, and knowing how to interpret them. The gold standard for building such knowledge is randomized experiments. From science to medical trials, this is the tool that is used when practitioners really want to know what causes something.

In recent years, businesses have started to harness this powerful tool to help them achieve key business goals. Amazon, E-Bay, Facebook, Google, Microsoft, and many others, are embracing randomized experiments to get the best evidence base for their decisions. And while their experiments started primarily in the digital realm, they are increasingly finding their way into the most important decisions that these firms make.

X-Lab will demonstrate why experiments – if performed well – can be such an important enhancer of business decision making. It will also introduce students to the skills they need to run experiments, and to interpret the results from the experiments of others.
II. COURSE OBJECTIVES

The objectives for the course are as follows:

- Understanding how to critically consider different types of evidence for decision making
- Understanding the value of running a randomized experiment for decision making in a business setting
- Understanding which types of questions are more or less appropriate for running an experiment in a business setting. Understanding what the considerations are in designing such experiments
- Learning how to design an experiment and to execute it in a way that takes into account the practical management and logistical issues facing firms
- Learning how to analyze the results of an experiment, and how to be an effective consumer of other experiments in management research

III. GRADING AND REQUIREMENTS

This class can only be taken for a grade. The grading is divided as follows:
- 20% Class participation
- 35% Homework
- 5% Project team 360 evaluation
- 40% Final class presentation

Details:

a. Class Participation (20%)

The character of the course naturally lends itself to active exchange among team members, thus we encourage, value, and recognize in-class contribution. Effective participation includes attendance, preparation, and making an active and constructive contribution to discussions

- You cannot contribute to the class or your team when you are not present. As such, both lateness and absences will count against your in-class contribution grade. If you must miss a class, please let the TA (and instructors) know beforehand.
- You should be prepared for every class. If for some reason you are not prepared, please let the TA and instructor know before the start of class.

b. Homework (35%)

The material covered in the lectures will lend itself to varying homeworks, which will involve a mixture of statistical exercises, experiment design questions, creative thinking and others. All homeworks are due at 5pm the night before the class after they are set. More detail is provided in the syllabus below.
c. Project team 360 evaluation (5%)

Students will also evaluate the contributions of the other team members at the end of the class with a 360 evaluation.

d. Final class presentation (40%)

All teams will present in the final class of the semester. Each team member is expected to contribute to this presentation.

IV. TEACHING ASSISTANCE AND HELP SESSIONS

If there is demand for it, the teaching assistants will hold special sessions to cover some of the more technical material in class. In addition, the teaching assistants are available to conduct individual or group “help” sessions on an occasional basis for any students who might find them useful. Students are encouraged to contact the TAs prior to class sessions where materials are reviewed. You should feel free either to approach the teaching assistants or to make an appointment to see the instructors if you have any questions regarding the course or the material.
V. SCHEDULE OF SESSIONS AND READINGS –

<table>
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<th>Session</th>
<th>Date</th>
<th>Topic</th>
<th>Readings, Exercises &amp; Key Due Dates</th>
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<tr>
<td>1</td>
<td>1/24</td>
<td>What is an experiment and why does it matter?</td>
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<td>Part 1: Why run experiments?</td>
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<td>Part 2: Designing and Running an Experiment</td>
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<td>2</td>
<td>1/25</td>
<td>Designing Experiments</td>
<td>Reading: Bloom et al. (2013) “Does</td>
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<td>Part 1: Case discussion – An experiment on the effect of</td>
<td>Management Matter: Evidence from</td>
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<td>management</td>
<td>India”, QJE 128(1): 1-51</td>
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<td>Part 2: Power calculations and sample size. How to</td>
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<td>design treatment to get enough power</td>
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<td>3</td>
<td>1/26</td>
<td>Running Experiments</td>
<td>Reading: TBD</td>
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<td>Part 1: Experiment management and data collection</td>
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<td>Part 2: Case discussion</td>
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<td>4</td>
<td>1/27</td>
<td>Initial Presentations</td>
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<td>Part 1: What can go wrong?</td>
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<td>Part 2: Initial presentations of group experiments</td>
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JANUARY 24. What is an experiment and why does it matter?

*Homework 1 Due (5%):* This homework should be done **individually**.

Think of an experiment that would have been good to run in your previous career, and write (less than one page) on what the question would be and what the experiment would look like (submit via stellar). Come prepared to discuss this in class.

**Part 1:**

- Why run experiments? What are pros and cons of experimenting?
- Comparing results from observational and experimental studies using examples from the literature
- When might an experiment be the best way to gather evidence for decision making?

**Part 2:**

- Introduction to the big elements of an experiment: treatment / control groups, units of randomization, theory of change, etc.
- A good experiment: what a good design looks like, and how to get there

**JANUARY 25. Designing Experiments**  

*Homework 2 Due (15%):* This homework should be done **individually**.

Calculate treatment effects with different samples from a real experiment and respond to analytical questions (data provided, submit via Stellar and complete the Qualtrics survey – link provided in instruction sheet for homework)

**Part 1:**

- Introduction to experiments through a management example
- Required reading (prior to class): Bloom et al 2013

**Part 2**

- Discussion on how big an experiment needs to be (and what happens if we get this wrong)
- What do we know from previous experiments in business? (surveys and meta-analyses)

**JANUARY 26. Running Experiments**  

*Homework 3 Due (20%):* This homework should be done **in teams**.

In teams, decide on a potential experiment, and do a power calculation for what you should expect. Submit via stellar.
Part 1

- Project management considerations: partners, managing expectations and pilot projects
- How to ensure quality data - possible methods of data collection and data management
- Ethical Issues

Part 2

- Case discussion

JANUARY 27. Running the experiment

Part 1

- What could go wrong?

Part 2:

- Initial presentations of group experiments. Groups will present their projects, including:
  - the question they are asking
  - the intervention(s) they are proposing (i.e. for treatment, control, etc.)
  - the sample size,
  - a project management plan and timeline
  - biggest challenges
MIT Sloan Policy on Classroom Behavior

In order to create a productive learning environment and to ensure mutual respect it is essential that the norms and rules of classroom etiquette and behavior reflect the highest standards. It is also important that these norms be consistently enforced by the faculty across all classes. Although in the final analysis each faculty member is responsible for his or her own classroom, there are significant negative consequences for other faculty and for the School if rules are not consistent and are not enforced. Therefore it is the policy of the MIT Sloan School that

- Students are expected to arrive promptly on time and to stay for the entire class.
- Faculty are expected to begin and end class on time.
- Laptops and e-readers are not to be open in the classroom except with explicit permission of the faculty (e.g., when used as part of the instructional program or when required by students because of physical or other challenges)
- Cell phones and PDAs are not to be used or permitted to ring in the classroom.
- Students are expected to attend all classes.

It is expected that faculty will articulate how these rules apply in their class as well as how the rules will be enforced.
When and Where Held
Six evening sessions from 6pm to 9pm: Tuesday January 24, 2017, Wednesday January 25, 2017, Thursday January 26, 2017, Tuesday January 31, 2017, Wednesday February 1, 2017 and Thursday February 2, 2017. Room 10-250 6:00pm to 9:00pm. MIT students may take this course for 3 units of Pass/Fail Credit.

Purpose of Course
The Nuts and Bolts of preparing a Business Plan and Starting a New Venture will be explored in this 28th annual course offering. Historically we have had 150 to 200+ students take the course each IAP and classes have been about equally divided between Engineering/Science/Architecture-Planning and Sloan Management students.

The course is open to members of the M.I.T. Community and to others interested in Entrepreneurship. It is particularly recommended for persons who are interested in starting or are involved in a new business. Because some of the speakers will be judges of the MIT $100K Entrepreneurship Competition, persons who are planning to enter the Competition should find the course particularly useful. Many successful $100K Teams have been formed as a result of Nuts and Bolts classes.

Teaching Staff

Joseph G. Hadzima, Jr.  Joe Hadzima is a Senior Lecturer at the M.I.T. Sloan School of Management, where he has lectured since 1984 on a variety of subjects including Entrepreneurship and Law. He received a B.Sc. from MIT in 1973, a S.M. in Management from the MIT Sloan School of Management in 1977 and a Juris Doctor law degree cum laude from Harvard Law School in 1979. He has been involved with new ventures over the last 30 years as a venture capitalist, entrepreneur, lawyer and board member. He was a Founding Judge of the MIT $100K Competition. He is currently President of IPVision, Inc., an intellectual property analysis, systems and services company that is a portfolio company of Main Street Partners, LLC of which Joe is a Managing Director. Main Street Partners is a venture development and technology commercialization firm.

Joost Paul Bonsen.  Joost Bonsen is a Lecturer in the MIT Media Arts and Sciences Program. He studies innovation everywhere, from invention in research labs through action in entrepreneurial startups and in innovation ecosystems generally. Formerly an entrant, mentor, judge, and Lead Organizer of MIT’s $100K Entrepreneurship Competition he has been instrumental in the growth of the Competition, including the recent doubling of the prize fund to include a Development and Social Impact Track. Joost is co-founder of the Howtoons project which distributes educational cartoons which show kids everywhere "How To" build things. He most recently finished the Management of Technology (MOT) program at the MIT Sloan School of Management with his thesis “The Innovation Institute: From Creative Inquiry Through Real-World Impact at MIT.” Prior to MIT Sloan, Bonsen ran the
MIT Founders Project which quantified the economic impact of MIT-related entrepreneurs, findings ultimately published by BankBoston as “MIT: Impact of Innovation.” Joost also received a Bachelor of Science in Bio-Electrical Engineering from MIT.

**Teaching Assistants** – To be Determined

The core Teaching Staff is augmented by experienced Entrepreneur guest speakers.

**Course Materials**

The course materials consist of the materials in this booklet and those posted electronically at the course website [http://nutsandbolts.mit.edu](http://nutsandbolts.mit.edu) and on Stellar [http://stellar.mit.edu/S/course/15/ia16/15.S21/index.html](http://stellar.mit.edu/S/course/15/ia16/15.S21/index.html). The materials include the actual full business plan for Virtual Ink, a MIT $50K Competition entrant that went on to launch the Mimio product that captures whiteboard drawings electronically. This Business Plan will be used throughout the course to illustrate concepts.

Presentation materials from speakers will be available on-line at the Course Web Site and the Stellar site following each presentation. The Web Site will also have other materials and references. Please use nutsandbolts-ta@mit.edu for email.

**NOTE:** We have a lot to cover in the course and intend to start each session promptly at 6pm. Our first order of business will involve logistics, schedule adjustments etc. Please be on time or you may miss important information.

**NOTE:** The following Session Descriptions are from the IAP 2016 course. The same topics will be covered in IAP 2017 but the order of the Sessions for IAP 2017 will be finalized once the speakers’ schedules are finalized.
SESSION 1: INTRODUCTION AND OVERVIEW OF BUSINESS PLANS; MARKETING AND SALES: FINDING YOUR CUSTOMER. Tuesday, January 24, 2017, 6:00pm to 9:00pm, Room 10-250

Part 1: The Business Plan

Introduction to the Business Plan. What is it, why do I need it and what is it used for? Practical do's and don'ts in preparing a Business Plan. Things to keep in mind in writing a Business Plan which will improve your chances of obtaining funding and running a successful business.

Introduction to Virtual Ink. During this course we will be using the Virtual Ink Business Plan as a working example.

Reading: In preparation for the class skim through the Virtual Ink Business Plan. Focus on the Executive Summary and the Table of Contents. This is a real plan submitted in the MIT $100K Competition which resulted in a real business which received substantial funding. We will reference this plan throughout the course.

Part 2: Marketing and Sales

Many entrepreneurs, especially technology based entrepreneurs, are accused of being too in love with their technology or concept. They rationalize that if they develop a better mousetrap then the product will sell itself. However, a good technology or product idea is a necessary but not a sufficient condition to establishing and growing a successful business venture. Who will buy the product? How will you reach buyers? How much will they pay?

If you have an idea for a product or service how do you determine whether there is a market for it? How do you develop a marketing strategy? How do you turn your idea and market research into sales? What do you need to do to convince potential investors that there is a market and that your idea is viable? If you don't have a specific product or service idea but you see a potential need, how do you turn the need into a product or service?

This session will discuss these issues and provide guidance on how to approach the marketing section of your business plan.

Speaker: Bob Jones
Serial Healthcare Industry Entrepreneur

Readings:

Review the market and technology sections of the Virtual Ink Plan.
SESSION 2: BUSINESS MODELS; PRESENTING YOUR VENTURE IDEA Wednesday, January 25, 2017 6:00pm to 9:00pm, Room 10-250

Part 1: “Business Models”

You have identified a technology strategy and a market. Now the most important question “How Do You Make Money”? This session will discuss Business Models. What are some common business models and when are the most appropriately used?

Speaker: Rich Kivel, Serial Healthcare Industry Entrepreneur

Readings:

Also review Business Model Generation on materials on Course Website (http://nutsandbolts.mit.edu/materials)

Part 2: Presenting Your Venture Idea

Entrepreneurs are always “selling” their ideas to potential employees, customers, partners and investors. How do you position and present your ideas in the best light? Part of this class will be an interactive session with students and others who are in the process of developing a business plan.

Speaker: Bob Jones.


SESSION 3: FINANCIAL SOURCES; FINANCIAL PROJECTIONS Thursday, January 26, 2017, 6:00pm to 9:00pm, Room 10-250

Part 1: Financing Sources Panel

You have identified the product/service and the market. You have settled on a business model and have done your financial projections. How will you finance the plan? This session will cover: Bootstrapping the early stages. Funding from the 3 F’s- Friends, Family and Fools. Angels- who are they and what are they looking for? Private placements. Customer financing. Consulting- getting someone else to pay for the development, provide a beta site and endorse your idea. Venture capital. Bank financing.

This part of the program will feature a panel of experts representing different financing sources. You will learn about the institutional constraints and needs of various funding sources. As a result you will be in a better position to determine if, when and how to approach these sources for financing.

Readings: See Class Website (http://nutsandbolts.mit.edu/materials)
Part 2: Financial Projections

Armed with an understanding of the market for your products how do you figure out what financial resources you will need to bring a product to that market? This portion of the program will introduce some financial projection techniques based on actual business experience.

Readings:
- Review the financial projections in the Virtual Ink plan.
- Download the Financial Template from the materials on Course Website (http://nutsandbolts.mit.edu/materials)

Speaker: Charlie Tillett, Sloan MBA; Former MIT $10K Participant; Serial Entrepreneur

SESSION 4: FOUNDER'S JOURNEY; LEGAL ISSUES Tuesday, January 31, 2017, 6:00pm to 9:00pm, Room 10-250

Part 1: Founder's Journey

What road are you embarking upon in starting a company, and what obstacles threaten your success? What else and who else will you need? These are the themes that are explored by Ken Zolot in course 6.933 "The Founder's Journey".

Readings:
Wasserman, Noam, “Surprising facts from “The Founder’s Dilemna”.

Part 2: “Legal Issues”


General questions and answers on legal issues for the entrepreneur - What you always wanted to know about the law but were afraid to ask/pay for.

Readings: See Class Website (http://nutsandbolts.mit.edu/materials)

Speaker: Joe Hadzima
Senior Lecturer, MIT Sloan School of Management

SESSION 5: NEGOTIATION SKILLS; ORGANIZATIONAL AND PEOPLE ISSUES Wednesday, February 1, 2017, 6:00pm to 9:00pm, Room 10-250

Part 1: Negotiation Skills

How do you negotiate deals and resolve team conflicts? Explore these questions in our
interactive class exercise.

**Speakers:**
Mindy Garber mgarber@alum.mit.edu
Victoria Bennet vjbennet@gmail.com

**Readings:** There are no readings for this part of the course.

*Part 2: “It's All About the People”*

Most ventures which fail do so because of people issues, not technology, market or funding issues. What people are needed to take the Business Plan from paper to reality? How do you identify good team members and avoid problems? Building an External Team and an Internal Team. Developing and implementing a philosophy for the business.

**Readings:**

**Speakers:** Joost Bonsen, MIT Media Lab
Special Guest: John Chisholm
MIT Alumni/ae Association President
Author of *Unleash Your Inner Company*

**SESSION 6: PITFAILS AND PLAN EXECUTION. Thursday, February 2, 2017, 6:00pm to 9:00pm, Room 10-250**

Your Idea is great. You have good feedback from potential customers. You are convinced that your Strategy is correct. So how come you are having trouble raising money or attracting a team or partners?

Over and over again entrepreneurs make the same mistakes. Experienced investors, partners, and employees are alert for the pitfalls. Session 6 will discuss these pitfalls, how to recognize them, what to do about them, and how to present a business plan case which alleviates or anticipates these concerns.

Yonald Chery will talk about what really happened to Virtual Ink: The Good, The Bad and the Ugly.

**MIT Course Credit Available.**

MIT students taking this course are eligible for 3 units of credit on a Pass/Fail grading basis. Attendance at each session is required (unless otherwise approved) and written material must be submitted. The written requirement can be met in two ways: (1) a 2-4 Executive Summary or (2) a slide presentation (10 slides max). See the course website for more details about the writing requirement: [http://nutsandbolts.mit.edu](http://nutsandbolts.mit.edu)

**Teams.** In the past many successful $100K Teams have been formed during the Nuts and Bolts class and we encourage active collaboration. The writing requirement can be met by a team but prior approval by the Teaching Staff or TA is required before submission if the team size exceeds 5.
For More Information:

If you have questions about this course in general, please contact nutandbolts-ta@mit.edu or through the course web link at http://nutsandbolts.mit.edu.
15.S50 Special Seminar in Management - How to Win at Texas Hold'em Poker

This course teaches mathematical strategies used to win at poker. Students should already be familiar with the rules of Texas Hold'em and know how to compute basic probabilities, although this will be reviewed. Students will be required to install a 3rd party software to play online poker, and there will be prize support, but no form of monetary exchange or illegal gambling will be endorsed. Poker is a mainstream game of surprisingly high skill level and its strategies are highly applicable to finance jobs, and life in general.

Pre-register on WebSIS and attend first class
Listeners allowed, space permitting
Level: H3 units Graded P/D/F

Goals of the Course

- Create an environment for study of poker theory without the need for real-money wagering.
- Develop the basic foundation for decision-making in poker.
- Allow students to assess their own level of play and have a framework for improvement.
- Provide an understanding of the current poker environment and how students might leverage talent for poker in the future.

Schedule

2. Wednesday, Jan 11 - More on pre-flop play and introduction to post-flop play.
3. Friday, Jan 13 - More post-flop concepts. Implied odds, reverse implied odds, bluffing.
4. Wednesday, Jan 18 - Cash games, deep stack strategy.
5. Friday, Jan 20 – Short stack strategy. memorizing equities, shove charts.
7. Wednesday, Jan 25 - Money management.
8. Friday, Jan 27 - Introduction to other games such as Omaha, 7-card stud, Black Jack.
9. Monday, Jan 30 - Guest Speaker
10. Wednesday, Feb 1 - Guest Speaker
11. Wednesday, Feb 3 - Wrap-up, prizes awarded.

Math Concepts Covered: basic combinatorics, probability and expectation, variance and the Law of Large Numbers, Nash equilibrium, data analysis

General Concepts Covered: myths of poker, decisions vs. results, risk management, exploitative vs. balanced play, current state of the game, poker lifestyle

Grading

- online poker league
- 75% attendance OR superior performance in online poker league
- short homework assignments
15.S51
Patent Law Fundamentals
Jeffrey A. Meldman

3 units G, graded P/D/F
(Listeners welcome)

Meets on the following dates in January and February:

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2 to 4 pm, room E51-151

Intensive examination of the basic provisions of U.S. patent law, emphasizing the requirements for patentability and the process of applying for a patent. Specific dates, topics, and readings appear in the syllabus on the following pages.

Designed for undergrads and grad students in all MIT departments. May be taken for credit (3 units G, P/D/F) or attended as a listener.

Reading materials include key sections of the U.S. patent statute (Title 35, U.S. Code) and related judicial decisions. All readings and lecture slides will be posted on Stellar. There are no textbooks or course packs to purchase. For the benefit of listeners, the MIT community will have access to the 15.S51 Stellar website throughout IAP.

For students who take the subject for credit, there will be one end-of-term quiz in the final class meeting on Wednesday, February 1. The quiz will determine students’ final grades. (Students who are not already registered for credit, and who wish to be, must add the subject for credit by no later than NOON on Monday, January 30.)

Jeff Meldman is Senior Lecturer in the MIT Sloan School of Management. He received his SB, SM, and PhD degrees from MIT (EECS) and his JD degree from Harvard Law School. His teaching and research have focused on intellectual property and privacy law, and on computer modeling of legal reasoning and legal procedure.

jmeldman@mit.edu, (617) 253-4932, room E62-317
## Syllabus

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<tr>
<td><strong>Wed Jan 18</strong></td>
<td><strong>Introduction</strong></td>
<td>“Sample Patent” (fictitious) for use in class and with the video below.</td>
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<tr>
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<td>What is a patent?</td>
<td>U.S. Constitution, Article 1, Sec. 8, Clause 8</td>
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<td></td>
<td>A sample patent document</td>
<td>Core excerpts from Title 35 of the United States Code (“35 USC”). <em>This is our most important reading. We will use it throughout the course. Skim it lightly now, but review specific sections of it carefully, as assigned below, and have it with you in every class meeting.</em></td>
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<tr>
<td></td>
<td>The role of the Constitution, the Congress, the Patent Office (PTO), and the federal courts</td>
<td>“Introduction to the Patent System,” FJC #4342-V/02, Oct. 2002, a video shown to jurors prior to federal trials involving claims of patent infringement.</td>
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<td>Relation of patents to other forms of intellectual property: copyrights, trade secrets, and trademarks</td>
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<td>Comparing patent and copyright protection for software</td>
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<td><strong>Fri Jan 20</strong></td>
<td><strong>“New and Useful”</strong></td>
<td><strong>Review:</strong> 35 USC §§101, 102, and 103</td>
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<td>Requirements for patentability: Utility</td>
<td>Structural Rubber Products v. Park Rubber, 749 F.2d 707 (Fed. Cir. 1984)</td>
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<td>Non-obviousness</td>
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| Mon Jan 23   | Eligible Subject Matter; Rights of Patent Ownership | Review: 35 USC §§ 101 and 154  
State Street Bank & Trust v. Signature Financial Group, 149 F.3d 1368 (Fed. Cir. 1998)  
Association for Molecular Pathology v. Myriad Genetics, 569 U.S. ___ (No. 12-398, June 13, 2013) |
Title 37 of the Code of Federal Regulations (CFR), selected excerpts relating to the patent specification (§§ 1.71-1.77)  
To be handed out in class:  
Sample U.S. patent (real). This patent will also be posted on Stellar after class, along with excerpts from its prosecution history (PTO “file wrapper”).  
On-line search tools available through the MIT Libraries  
Guest:  
Anne Graham  
MIT Libraries |
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<th>Class Meeting</th>
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<tr>
<td>Fri Jan 27</td>
<td><strong>Applying for a Patent (Part II); IP for Start-Ups</strong>&lt;br&gt;Patent claims: scope&lt;br&gt;structure and language&lt;br&gt;independent vs. dependent</td>
<td>O’Reilly v. Morse, 56 U.S. 62 (1854)&lt;br&gt;Review the claims in the sample patent handed out in Wednesday’s class, and bring the patent with you to class today.</td>
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<tr>
<td>Mon Jan 30</td>
<td><strong>Infringement, Defenses, and Remedies</strong>&lt;br&gt;Literal infringement and the construction of claims&lt;br&gt;Doctrine of equivalents&lt;br&gt;Patent invalidity and other defenses&lt;br&gt;Legal and equitable remedies&lt;br&gt;Anatomy of a recent patent infringement case:&lt;br&gt;Adrea v. Barnes &amp; Noble (S.D.N.Y. 2014)&lt;br&gt;Guest: Steven M. Bauer&lt;br&gt;Chair, Patent Litigation Proskauer Rose LLP&lt;br&gt;and Lecturer, MIT EECS</td>
<td><strong>Review:</strong> 35 USC §§ 271(a), 282, 283, and 284.&lt;br&gt;Warner-Jenkinson v. Hilton Davis Chemical, 520 U.S. 17 (1997)</td>
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<tr>
<td>Wed Feb 1</td>
<td><strong>End-of-Term Quiz</strong></td>
<td>(In the very unlikely event that MIT is closed on February 1 due to snow, the quiz will be held on Thursday, February 2 (same time, room TBA).</td>
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Instructor: Robert H. Hacker  
c| 305-742-8222  
e| rhhfla@gmail.com

Course  
SSIM: Scaling the Social Entrepreneurship Venture  
Jan. 17-20, 3-5pm, E51-057

Course Description  
This course builds on the concept that traditional entrepreneurship can be used to address social problems. Particular attention is given to the critical issues of sustainability and scalability in social ventures. The course will unpack the myths and economics of social entrepreneurship in an effort to find a heuristic for successful "social" ventures. The course explores alternative models of social entrepreneurship and the particular requirements and techniques in each model to achieve significant scaling. Concepts and techniques from design thinking, complexity theory and business model will be used to stimulate a better understanding of the business models for social ventures.

The students will develop the tools and techniques for successful social ventures through team development of a course project for their own new business model for a social venture. The course project is in lieu of any other assignments.

Course content is supplemented by guest speakers.

Course Objectives  
- To develop an understanding of the multi-disciplined approach required to successfully develop a social entrepreneurship venture (SEV)  
- To learn and apply a variety of advanced tools and concepts, including design thinking, business model and complexity theory, to business plan development  
- To develop hands on experience in innovation

Learning Outcomes  
- To develop the skills necessary to develop a new social enterprise venture  
- To identify the proper type of business model to achieve a social objective  
- To further develop skills in teamwork and collaboration

Required Texts:

Required Articles/Papers to Read

- *Strategic Philanthropy for a Complex World*
- The poor know how to overcome poverty. | Robert Hacker | TEDxBocaRaton
- Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity | The Henry J. Kaiser Family Foundation | Basic Analysis

Others as assigned.
15.S54 Independent Study Plan: Disciplined Entrepreneurship Study
MIT Sloan School of Management, January 2017

**Professor**     **Email**
Bill Aulet        aulet@mit.edu

**Administrative Assistant**
Alicia Carelli   carelli@mit.edu

**Independent Study Startup Liaison Assistants**
Aagya Mathur     Aagya@mit.edu
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Sophie Meralli   meralli@mit.edu
Veronika Kamenova vtkam@mit.edu

**Date:**

**January 10th**
Kick-off meeting with Bill Aulet: Conference Call @ 2PM

**January 11th – February 3rd**
At least three weeks’ project

**February 6th**
Final Presentation 5 – 8 pm @ Martin Trust Center, The Garage (RM 163). Each student has max. 10 min to present the key learnings/progress of your DEP study.

**Class Website**
NA

**Course Materials**


**Exam Schedule/Final Deliverable**

There is no final exam for this independent study project. However, students are required to submit a final presentation/report summarizing the details of their findings.
Teaching Assistants

TBD

Club Policies

- Purpose is to allow students to study, analyze and learn from entrepreneurial growth organizations
- Strict academic study that does not allow for any kind of compensation
- Deliverable: one Final Presentation/Report of 8-10 slides comparing the experience of the startup to Bill Aulet’s 24 Steps to Disciplined Entrepreneurship, to be presented to Bill and other DEP participants February 6th 2017
- 3 credits for completing the course successfully
- Strict confidentiality maintained with the startup

Office Visits

If students have questions or want to discuss their project with Bill, they are encouraged to set up time with Bill by emailing Alicia Carelli (carelli@mit.edu) to set up a time. Please come prepared to with specific questions /challenges you’re facing.

Grading – Pass/Fail

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Presentation/Report</td>
<td>100</td>
</tr>
</tbody>
</table>

Regrade Policy

NA

Conduct

Professional conduct is built upon the idea of mutual respect. Such conduct entails (but is not necessarily limited to):

Attending the class. Core classes are required for a reason, and each class benefits from the attendance and contributions of all students. You should display a legible name card at all times.

Arriving on time. Late arrivals are disruptive to both lectures and class discussion, and show disrespect to those who are on time.

Minimizing disruptions. All cell phones and pagers should be turned off during class. You should avoid engaging in side conversations after class has begun.

Focusing on the class. While you may take notes on laptops, do not use laptop computers or hand-held devices for other tasks while in class. Activities such as net surfing, day trading, and answering email are very impolite and disruptive both to neighbors and the class.
Being prepared for class. You should be ready to discuss any assigned readings and to answer any assigned questions for each day's class, including being ready to open a case assigned for that day.

Respect. You should act respectfully toward all class participants.

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Values@MITSloan

Values in Practice in the Classroom

**Values Statement**

To foster an appropriate living and learning culture, MIT Sloan students, faculty and staff:

- Value differences and respect each other's abilities
- Promote effective teamwork
- Expect academic honesty
- Support each other's successes
- Help each other attain personal and professional objectives
- Hold each other accountable for decisions made and actions taken

MIT Sloan's Professional Standards provide a guideline for professional behavior by students, faculty, and staff inside and outside of the classroom, and directly reflect the Values Statement above.

Fundamental to the principle of independent learning and professional growth is the requirement of honesty and integrity in the conduct of one's academic and non-academic life. The MIT Sloan School is committed to creating an environment in which every individual can work and study in a culture of mutual respect. When making individual decisions we must keep in mind the interests of the many other stakeholders.

**Academic Honesty**

As a member of the MIT Sloan academic community, the highest standards of academic behavior are expected of you. It is your responsibility to make yourself aware of the standards and adhere to them. These standards are discussed below, specifically regarding plagiarism, individual work, and team work.

This discussion of academic honesty is not exhaustive, and there may be areas that remain unclear to you. If you are unsure whether some particular course of action is proper, it is your responsibility to consult with your professor and/or teaching assistant for clarification.

When students are found to have violated academic standards, disciplinary action will result. Possible consequences include grade reduction, an F grade, a transcript notation, delay of
Plagiarism

Plagiarism occurs when you use another's intellectual property (words or ideas) and do not acknowledge that you have done so. Plagiarism is a very serious offense. If it is found that you have plagiarized — deliberately or inadvertently — you will face serious consequences, as indicated above.

The best way to avoid plagiarism is to cite your sources - both within the body of your assignment and in a bibliography of sources you used at the end of your document.

Internet Research

Materials gathered through research via the Internet must be cited in the same manner as more traditionally published material. Lack of such citation constitutes plagiarism.

These definitions were drawn from the MIT Libraries Web site. For more information please visit: The Information Navigator.

Individual Assignments

Many assignments in the MIT Sloan coursework are expected to be done individually. The information below outlines what is meant by "individual" work. These rules should be observed unless otherwise defined by the instructor. **If students are unsure whether some particular form of interaction is proper, the instructor and/or teaching assistant should be consulted.**

When you are asked to do individual work, you are expected to adhere to the following standards:

- Do not copy all or part of another student's work (with or without "permission").
- Do not allow another student to copy your work.
- Do not ask another person to write all or part of an assignment for you.
- Do not work together with another student in order to answer a question, or solve a problem, or write a computer program jointly.
- Do not consult or submit work (in whole or in part) that has been completed by other students in this or previous years for the same or substantially the same assignment.
- Do not use print or internet materials directly related to a case/problem set unless explicitly authorized by the instructor.
- Do not use print or internet materials without explicit quotation and/or citation.
- Do not submit the same, or similar, piece of work for two or more subjects without the explicit approval of the two or more instructors involved.

Please note that many classes will require a combination of team work and individual work. **Be sure that you follow all the guidelines for individual work when a faculty member identifies an assignment as an individual one.**

Team Assignments

When you are asked to work in teams, there is a broad spectrum of faculty expectations. Three general types of appropriate collaboration on team assignments are described below. The instructor will indicate in the syllabus what his/her expectations are. If there is any uncertainty, it
is the student's responsibility to clarify with the professor or TA the type of team work that is expected.

**Type 1 Collaboration**
The professor states that collaboration is allowed, but the final product must be individual. An example of this might be a problem set.

1. You are allowed to discuss the assignment with other team members and work through the problems together.
2. What you turn in, however, must be your own product, written in your own handwriting, or in a computer file of which you are the sole author.
3. Copying another's work or electronic file is not acceptable.

**Type 2 Collaboration**
The professor states that collaboration is encouraged but that each person's contribution to the deliverable does not have to be substantial (taking a "divide and conquer" approach). An example of this might be a brief progress report.

- Each team member is encouraged to contribute substantially to the team assignment, however, the team may choose to assign one or more team members to prepare and submit the deliverable on behalf of the team.
- Regardless of how work is shared or responsibilities are divided among individual team members, each member of the team will be held accountable for the academic integrity of the entire assignment. If, for example, one member of the team submits plagiarized work on behalf of the team, the entire team will be subject to sanctions as appropriate.
- The team may not collaborate with other students outside of the team unless the professor explicitly permits such collaboration.

**Type 3 Collaboration**
The professor states that collaboration is expected and that each team member must contribute substantially to the deliverable. An example of this might be the FYC or the OP project.

1. Each team member must make a substantial contribution to the assignment. It is not, for example, acceptable to divide the assignments amongst the team members (e.g., part of the team does the FYC and the other part does another project), though the team may divide the work of any one assignment to complete it as they deem appropriate.
2. The team may not collaborate with other students outside of the team unless the professor explicitly permits such collaboration.

To repeat, if there is any question about the rules for a particular assignment the student should check with the faculty member.

**Personal Conduct**
MIT Sloan's Professional Standards provide a guideline for professional behavior by students, and faculty inside the classroom. The MIT Sloan School is committed to creating an environment in which every individual can work and study in a culture of mutual respect. When making individual decisions we must keep in mind the interests of the many other stakeholders.

Consistent with the general goal of mutual respect, faculty, students, and staff are reminded to demonstrate:
On-time arrival to classes and presentations, with uninterrupted attendance for the duration.

- **For example**, those who arrive on time to an event or class and stay until it ends show courtesy to both the speaker and the audience, and avoid disrupting the session for others.

On-time initiation and termination of classes and presentations.

- **For example**, there is a 10-minute transition time period allocated between MIT Sloan class sessions. A class session or any other public meeting is expected to formally end 5 minutes before its scheduled ending time, and the following class session or meeting is expected to begin 5 minutes after its scheduled starting time. Students and faculty who observe this practice allow classrooms to be cleared in a reasonable way, facilitate traffic flow between rooms, and minimize disruptions to MIT Sloan's tightly-scheduled facilities.

Maintenance of a professional atmosphere. This includes, but is not limited to:

- **Using respectful comments and humor**  Be aware that once you matriculate at MIT Sloan, you'll be representing the MIT Sloan School and MIT for the rest of your life. Make a positive impact as an individual and School representative by extending respect to your MIT Sloan community colleagues and all other guests and strangers. **For example**, minimize misunderstanding by communicating thoughtfully and using humor carefully in a context of mutual respect with new acquaintances and strangers-and in the context of your preexisting relationships with your friends. Those who use the 'Golden Rule' (e.g., treating others as they would like to be treated themselves) as a starting point in their interactions with others will always have solid friendships and business relationships at hand.

- **Utilizing computers and technology suitably (e.g., silencing wireless devices, no Web-browsing or emailing)**  For example, those who switch off their cell phones before the start of class respect our academic environment by allowing uninterrupted learning to proceed. Similarly, those who turn off laptop computers before a class or meeting avoid 'multitasking' activities such as internet browsing and emailing that are unwelcome and distracting to their neighbors. Unless specifically permitted by a faculty member, an event organizer, or a presenter, **laptops should remain closed** during MIT Sloan class sessions, presentations, and meetings.

- **Refaining from distracting or disrespectful activities (e.g., avoiding side conversations and games)**  As with the improper use of cell phones and laptops, side conversations and game playing during meetings, events, and classes are distracting and discourteous to colleagues, guests, and presenters, reflect poorly on the MIT Sloan School-and should be avoided.

- **Courtesy towards all guests, hosts and participants in the classroom.**

Community members are expected to maintain decorum in interactions with members and guests of the MIT Sloan community. Such behavior should: 1)—reflect MIT Sloan Professional Standards, and; 2)—be consistent with the North American business practices. Appropriate, courteous behavior enhances MIT Sloan's reputation and encourages others to participate in our activities, hire our students, and contribute to our School. In MIT Sloan's environment, students are expected to observe the proper dress, decorum, and etiquette that is appropriate to MIT Sloan Professional Standards and North American business customs for each
setting they are in. For example, unless otherwise specified, business casual attire is the norm for the classroom.

- Observance of the most conservative standards when one is unsure about which norms apply.
  - For example, if you are unsure whether a faculty member allows the use of laptop computers in class, assume that laptops are not permitted unless/until you learn otherwise. And if you are unsure if your comments will be offensive to someone, particularly from another culture, refrain from sharing them.

Upholding these expectations and the standards upon which they are based is a shared right and responsibility for all faculty, students and staff at the MIT Sloan School. As a learning and professional community, we seek and deserve no less.

For more information about Values@MIT Sloan, please refer to our website, located at

https://sloanpoint.mit.edu/administration/values/Pages/default.aspx
# Calendar of Course Plan

**15.SXX Independent Study Plan**

<table>
<thead>
<tr>
<th>Date</th>
<th>Reading</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>12/15</td>
<td>Overview/Intro to the Study Plan</td>
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</tr>
<tr>
<td>1/8</td>
<td>Update 1 on Study Plan</td>
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</tr>
<tr>
<td>1/15</td>
<td>Update 2 on Study Plan</td>
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</tr>
<tr>
<td>1/22</td>
<td>Update 3 on Study Plan</td>
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<td>1/29</td>
<td>Update 4 on Study Plan</td>
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<tr>
<td>2/16</td>
<td>Final Presentation/Report</td>
<td>NA</td>
</tr>
</tbody>
</table>
15.S60 --- Computing in Optimization and Statistics

Days: Tue Thu (9am-12pm)  
1/9/2017 – 2/3/2017  
Place: E51-151  
Credits: 3 Units (Credit/Fail or Listener Only)

Instructors:  
Prof. Dimitris Bertsimas (dbertsim@mit.edu)  
Phil Chodrow (pchodrow@mit.edu)  
Brad Sturt (bsturt@mit.edu)  
Joey Huchette (huchette@mit.edu)

TAs: Jackie Baek, Eli Gutin, Miles Lubin, Sebastien Martin, Steven Morse, Yee Sian Ng, Colin Pawlowski, Clark Pixton, Charles Thraves, Alex Weinstein

Course Content and Objectives:

The "big data revolution" has placed added emphasis on computational techniques for decision-making with data. Large-scale optimization, data analysis and visualization are now commonplace among researchers and practitioners alike. More than ever, there is a need not only to develop techniques, but also to implement and use them in computational practice.

This course (formerly “Software Tools for Operations Research”) is a multi-session workshop on software tools for informing decision-making using data, with a focus on optimization and statistics. We concentrate on teaching elementary principles of computational practice using common software and practical methods. By the end of the course, students will possess a baseline technical knowledge for modern research practice. Class participation and individual hands-on coding are stressed in each session.

The course is divided into 8 self-contained modules. Each module consists of a 3-hour, interactive workshop where participants learn a specific software tool. Class participation, group code-reviews and individual hands-on coding are stressed in each session. At the end of the module, participants will be able to use the software and techniques learned in their own research. Participants will also leave each workshop with code they, themselves, have authored to use for future reference.

Prerequisites:

This course is NOT entry-level. The prerequisites are:
Required: Instructor permission. Please email bsturt@mit.edu to request permission. Briefly describe your interest in the course as well as your academic and research background.

Required: Familiarity with a modern programming language such as C++, Python, Java, R, Matlab, or Julia. Modules will be taught in R, Julia, and Python, but prior knowledge of these specific languages is not assumed.

Helpful: Familiarity with optimization at the level of 6.255J/15.093J. Familiarity with elementary statistical concepts. Experience working with data in a research or industry setting.

Course Materials:

All software used in this course is either available free for download, under academic license, or through MIT IST. Data sets, software installation instructions, tutorials and reference material will be made available through a class GitHub repository (previous year’s found at https://github.com/joehuchette/OR-software-tools-2016).

Grading:

Course is only available as Credit/Fail or Listener. To receive credit for the course, attendees must

1. Attend and actively participate in at least 6 of 8 sessions
2. Complete ALL 8 of 8 “Testing your Installation Assignments” (See below)
3. Complete course feedback forms for at least 6 of 8 sessions.

See the “Assignments” section below for more detail.

Module Schedule:

The schedule will include the following topic modules (subject to change):

Introduction

Module 1: Motivation, Terminal, Github
Leaders: Jackie Baek and Brad Sturt

Statistics and Data Analysis using R

Modules 2-3: Data Wrangling & Visualization in R
Leaders: Alex Weinstein, Steve Morse, and Phil Chodrow

Module 4: Statistical Modeling and Machine Learning in R
Leaders: Clark Pixton and Colin Pawlowski
Optimization using Julia

Module 5: Introduction to Julia and JuMP, Linear Optimization, and Engaging
Leaders: Sebastien Martin, Joey Huchette and Eli Gutin

Module 6: Nonlinear and Integer Optimization in JuMP
Leaders: Miles Lubin and Yee Sian Ng

Excel for Operations Research

Module 7: Excel for Operations Research
Leader: Charlie Thraves

Module 8: TBD

Assignments:

Before each session

All software and datasets required for a session should be installed PRIOR to that session. Instructors will not delay class to assist with installation issues. Detailed installation instructions are available on Github.

At the end of each set of instructions, you will see a section entitled “Testing your installation.” This section will typically involve downloading a script from the Stellar site and running that script on your computer.

*Your homework--due at 8pm the day before each session--is to copy and paste the output of this script into a text document, and upload this text document to Stellar.*

Some installation processes make take several hours to complete. Please plan ahead.

During each session

Participants should bring a laptop to all sessions or make prior arrangements to share with another student. Participants are expected to participate in coding exercises, class discussion and any group-code reviews.

Each session is approximately 3 hours long. Please make sure your laptops are charged before the session and bring a power-adapter as necessary.
Overview

Everyone needs a place to live and a way to pay for it. For most homeowners, their residence is also their largest and riskiest financial asset. For renters, finding affordable housing can be a major challenge. And as recent events underscore, a housing market meltdown can have dire and long-lived consequences for the broader economy. All this leads policymakers to have an intense interest in, and through their policy choices influence on, housing finance.

In this course students will learn about a variety of topics relating to housing finance. We’ll start with the U.S. mortgage market, which is at a particularly interesting crossroads, and also lay out some basic facts about risks and returns for mortgage investors. Students will discuss the pros and cons of the major policy options now under debate. For comparison, we will also look at mortgage financing models in other developed countries. Other topics (time permitting) will include the challenges of managing public mortgage programs, issues in financing affordable housing, and reverse mortgages.

The instructors have a mix of academic, policy and practical knowledge about these topics that they look forward to sharing with the class. There may also be a guest speaker.

Materials

Class notes and readings will be made available on Stellar. It is important that you download the class notes and print them out so that you can write notes on them during class. It is also important that you go over the required readings before class as they will be the basis for class discussion. There are no required textbooks.
Grading and expectations

The final grade (P/F) is based on two components:

1. **(80%) Paper**: The main assignment for the course is to write a short paper (up to 5 pages plus references and charts) that critically analyzes a topic related to the class. Papers can be written individually or in groups of up to 4 people. A list of suggested paper topics will be made available, or you can propose a topic of your own. **The paper must be submitted online by 5pm on January 26.**

2. **(20%) Class participation**: Participation and attendance are important. Please have your name card out and be prepared to take an active part in class discussions.

Office Hours

We’re happy to meet to discuss any questions or concerns. Availability is by appointment. You can reach us by email at: dlucas@mit.edu or dcris@mit.edu.

Course Outline and Readings

*Schedule of topics is subject to change. Check Stellar for most recent information.*

**MANY READINGS TBA**

Topic 1: Overview of U.S. housing and mortgage markets

Topic 2: Mortgage products: consumer and investor perspectives

Topic 3: The business of mortgage financing, opportunities and challenges

Topic 4: International mortgage markets

Topic 5: Policy options for the future of the U.S. mortgage market


Topic 6: Managerial challenges for government mortgage programs

Topic 7: Financing affordable housing

V. 11-Nov-16
15.S63 SPEECHES, SHAKESPEARE AND LEADERSHIP; exploring leadership through famous speeches, Shakespeare and storytelling.

Christine Kelly, Senior Lecturer, MIT Sloan; and Henriette Koomans, Consultant and coach;

Friday, Jan 27 09:30AM-04:30PM E62-361
Monday, Jan 30 09:30AM-04:30PM E62-221
Tuesday, Jan 31 09:30AM-12:30PM E62-221

Maximum enrollment: 18 students. Students must attend all three sessions.

This class is an exploration of leadership through famous speeches, focusing on your leadership stories, collaborating on a one hour performance, including personal speeches, and scenes from Shakespeare. In addition to working on a performance, you will tell your stories to identify and reflect on issues related to being a leader. The workshop will culminate in performing before an audience.

The class will be asked to make all decisions about organizing and creating the performance. In doing so, each member will be given feedback on leadership roles in preparing for the production as well as on their individual performances.

The focus is on creative collaboration and individual communication. Both faculty and students will support development of voice and breath, physical movement, story-telling and acting to raise the level of speaking and power of communicating as leaders.

Prof Christine Kelly teaches leadership communication and coaches at MIT Sloan. She was a theatre director, writer and has trained as an actor.

Henriette Koomans is a management trainer and coach involved in developing leadership programs for private and public sector organizations in The Netherlands. She has also trained as an actor.

Pre-course Assignment

1. Prepare a statement of your objectives for the course. 2. Review the attached speeches; and 3. Memorize selected four lines from your favorite speech and 4. Send us an email of your selection. 5. Think about critical incident: think about a time when you were intensely involved, dealing with conflict or a challenge where you were either successful or overcame something, or where you failed. Purpose: tell a story about yourself, get to know each other, use to build your personal speech.
Workshop objectives:

- Increase awareness of your leadership style and choices
- Learn about executive speechmaking to influence organizational and public discourse.
- Learn better use of breath support for voice, ease of projection and managing nerves
- Learn more about Shakespeare’s plays and use of language to support performance
- Receiving feedback to improve performance; video-taped rehearsal for your review for further feedback.

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Program Outline

Friday, Jan 27  9.30 am to 4.30 pm, 12:30 – 1:30 lunch

I Introductions, Agenda and Objectives
A. Leadership Theme: “Being Heard and Becoming Visible” whether at home, at work, or in the public space.
   Exploring speeches from Shakespeare

B. Theory of Speech and Rhetoric from Aristotle (ethos, logos, pathos, and mythos)
   Exercise: Review and analyze speeches from film

C. Begin Breath and Voice work
   Exercise: Warm up
   Rehearse

D. Discussion: Projection; How do you make a “statement”; Handling nerves

E. Creating and writing your speeches
   Storytelling in smaller groups.
   Purpose: Help students tell their personal story and to identify the essential themes.

Afternoon

A. Leadership Theme: “Speaking truth to power”
   1. Review of selected Shakespeare speeches
   2. Analysis and critique of personal speeches

B. Breath and Voice exercises, continued

C. Shakespeare the actor: how his speeches inform you

D. Crafting your speeches and rehearsal

Homework: Develop speech to power; rehearse and memorize speech from Shakespeare
Monday, Jan 30  9.30 am to 4.30 pm, 12:30 – 1:30 lunch
A. Leadership Theme: “Inspiring Others”
   Exploring speeches from Shakespeare

B. Leadership Theme: “Standing up for Values”
   Review related speeches from current politicians and Shakespeare

C. Breath and Voice exercises, continued

Afternoon

A. Leadership Theme: “On the Line and Out of your Comfort Zone”, making a leadership statement
   Personal Performances; delivering your own speech.
   Make your own speech using rhetorical building blocks, storytelling, lines from Shakespeare or others.

B. Use of rhetoric and building blocks of speech writing

C. Leadership and performance rehearsal

Tuesday, Jan 31  9.30 am – 12.30
Final rehearsal
Performance for Audience
Feedback and evaluation

Sponsor(s): MIT Sloan School of Management; Managerial Communication
Contact: Christine Kelly, E62-325, 617-452-3594, ckelly@mit.edu
A. INTRODUCTION:

Karl von Clausewitz, the great Prussian general and military strategist, once stated that war is “an act of violence intended to compel our opponent to fulfill our will,” and further that “war is nothing but the continuation of politics with the admixture of other means.” Although conceptions of military art and science have evolved since Clausewitz’s *On War* was first published in 1832, and international opinions regarding warfare as acceptable statecraft have changed significantly, those two quotes represent the essence of armed conflict and provide important insight into the nature and demands of military leadership.

The values, norms, and practices of military leadership are fundamentally linked to both the political aims of military craft and the harsh reality of armed conflict. Military leaders are challenged not only to achieve the political objectives of the state—as limited or broad as they might be—but to achieve those objectives by leading people and organizations in unimaginably difficult circumstances. Correspondingly, military leaders are required to be intelligent, determined, and decisive; these are the qualities that military leaders must possess to motivate people, maintain control, and accomplish a mission.

Most importantly, military leaders must be ethical. On a battlefield, in a cockpit, or on the open seas, the result of a single leader’s unethical decision could be the violation of an international treaty, the commission of a war crime, or the death of an innocent person. It is precisely because the military operates in a realm of grave consequences that ethics is of singular importance.

Good military leaders understand context and consequences, and they embody the principles of ethics, determination, presence of mind, and decisiveness. At this very moment, an Army infantry captain in his mid-20s is leading a company of 150 soldiers on patrol in the mountains of Afghanistan; a young Navy officer is in the control room of a nuclear submarine guiding a watch team of 40 sailors in the depths of the ocean; and a logistics officer is responsible for 4,000 soldiers and hundreds of millions of dollars’ worth of military equipment. Each of them will be challenged to lead people and make important decisions in resource-constrained environments and under pressures of time and conscience.

This course seeks to explain the fundamentals of military leadership through classroom instruction, case studies, panel discussions, and active student involvement. The course will challenge students to think about the context and demands of on-the-ground military leadership and to evaluate the principles of military leadership in the context of MIT...
Sloan’s leadership framework. Finally, the course will attempt to bridge the gap between military and business leadership, suggesting ways in which military leadership norms could help guide corporate leaders in their daily decision-making.

B. COURSE POLICIES:
Please abide by MIT Sloan Classroom Values, which can be found in the Materials section of the course Stellar site. In particular, please note that this is a no technology class. Please do not use computers, tablets, cell phones, etc. during the course. It is disrespectful to the speakers and distracting to your classmates. Turn off and put away your devices, and engage in the course.

To receive credit for the course (including Sloan leadership credit), you must:
1. Attend all three days and stay for the duration of each session.
2. Complete assigned reading in order to better engage with the guest speakers, panelists, and lecturers.
3. Complete and submit the Day 3 writing assignment.
4. Participate actively and genuinely. Bystanders do not make interesting students or effective leaders.

C. COURSE ASSIGNMENTS
Students will complete the following assignments. All assigned reading is located in the Materials section of the course Stellar site.

Assignments in preparation for Day 1:
1. Read “Ethical Decision Making in Uncertain Environments” Tony Hatala (student case study).

Assignments in preparation for Day 2:
2. Read “Counterinsurgency Leadership: The Key to Afghanistan and Iraq,” Mark Moyer, in Counterinsurgency Leadership in Iraq, Afghanistan, and Beyond, Nicholas J. Schlosser and James M. Caiella, eds.

Assignments in preparation for Day 3:
1. Write a 1 to 2-page paper that describes a personal leadership decision that you have made in your own life or career and describe how the principles of military leadership in this course might have supported your decision or led you to a different decision.

D. COURSE STRUCTURE:

I. [Day 1, morning]
UNDERSTANDING THE CONTEXT OF MILITARY LEADERSHIP
a. Introduction: Course overview; what is military leadership and why is it relevant for MIT students? (1 hour)

b. Case Study: Ethical Decision making in Uncertain Environments, by Tony Hatala (1 hour)

c. Instruction: Ethics and military decision making (1 hour)

II. [Day 1, afternoon]
LEADERSHIP ROLES AND REFLECTIONS
a. Junior Military Leadership Panel: a student-led panel discussion about leadership roles for young military leaders (1 hour)

b. GUEST SPEAKER 1: Former junior military leader (1 hour)

c. MIT Sloan’s Leadership framework: refresher of four leadership capabilities (sensemaking, relating, visioning, inventing) (.5 hours)

d. Small-group discussions: Students break out into small groups (7-10) moderated by a student moderator with military experience. Synthesize the day’s lessons and discuss whether and how principles of military leadership are consistent with MIT Sloan’s leadership framework (.5 hours)

III. [Day 2, Morning]
MILITARY LEADERS IN ACTION
a. Case study: Explosive Operations in the Multinational Environment, by Will Wolfe

b. Conflict and Conscience Panel: student-led panel discussion focused on situations involving conflicting values and what decisions and actions the panelists took to resolve or address those conflicts (1 hour)

c. Guest Speaker 2: Former military leader discussing applications of military leadership in civilian business practice (1 hour)

IV. [Day 2, Afternoon]
BRIDGING THE GAP: THE MILITARY PROFESSION AND CIVIL-MILITARY RELATIONS
a. Guest Speaker 3: Leadership and the military profession, focusing on interaction between military and society (1 hour)

b. Guest Speaker 4: Capstone lecturer; former senior military leader discussing military leadership, public service, and the role of the military in society (1.5 hours)

c. Small-group discussions: Students break into small groups and have guided reflection about today’s lessons (.5 hours)
V. [Day 3, Morning]  
CAPSTONE LEADERSHIP ACTIVITY

During the first two days of 15.520 we have examined situations where leadership and sound decision-making can mean the difference between success and failure when the stakes are at their highest. This morning we will conduct a practical leadership and teamwork exercise using a real military training program. You will be divided into teams and rotate through leadership roles in order to solve problems in scenarios that are part of the US Army’s Leaders’ Reaction Course.
VI. [Day 3, afternoon]
REVIEW, REFLECTION, AND SUMMARY—COMPLETED ON STUDENT TIME

a. Review lessons learned from Leaders’ Reaction Course; discuss personal leadership reflection assignment.
b. Course wrap-up, conclusion, and feedback

E. ADDITIONAL OPPORTUNITIES FOR LEARNING (OPTIONAL)

“So there I was…” Storytelling is a time-honored military tradition, and we invite you to join us in camaraderie and friendship at Meadhall following class on Monday 23 January and Tuesday 24 January. Members of the Sloan Veterans Club and our guest speakers for the day will be present, and it will be an excellent opportunity for storytelling, networking, and asking the hard questions you might have been hesitant to ask in class.